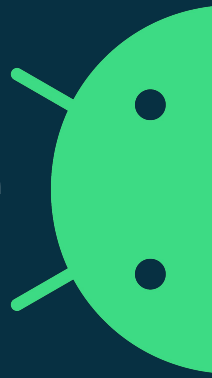
Android Emergency Location Service



Presentation to the FCC
November 6, 2019

android

Android Emergency Location Service (ELS)

ELS is a supplemental service that sends enhanced location directly from Android handsets to emergency services when an emergency call/text is placed.

Emergency call initiated by Android device

ELS location computed *on device* and *sent directly* to endpoint as Data SMS or HTTPS message per AML standard

Endpoint is *set up and managed* by ELS Partner, who is responsible for making ELS location available to Emergency Services (*push or pull*).

Google's Responsibility

Partner's Responsibility

Fused Location Provider Computes ELS Location

FLP combines GNSS, cell, WiFi location technologies, and device sensors to derive highly accurate indoor and outdoor location. FLP is:

- Fast -- almost instant on, with quick location updates when a user moves
- Used by 1 in 3 apps in Google Play Store

ELS Offers Key Benefits

- Seamless global solution, regularly updated and widely available
  - Supported in ~99% of Android devices with Google Play Services (Android OS 4.3 and higher)
  - No special hardware/app/user action required
- Google does not receive or store PII
  - Only activates when user calls/texts an emergency number
  - Location calculated on-device and delivered to an ELS Endpoint that makes location available to public safety
    - Google does not see ELS location
- Free and easy
  - Flexible & highly configurable for partners
  - Easy to integrate with emergency services infrastructure
  - No cost to partners

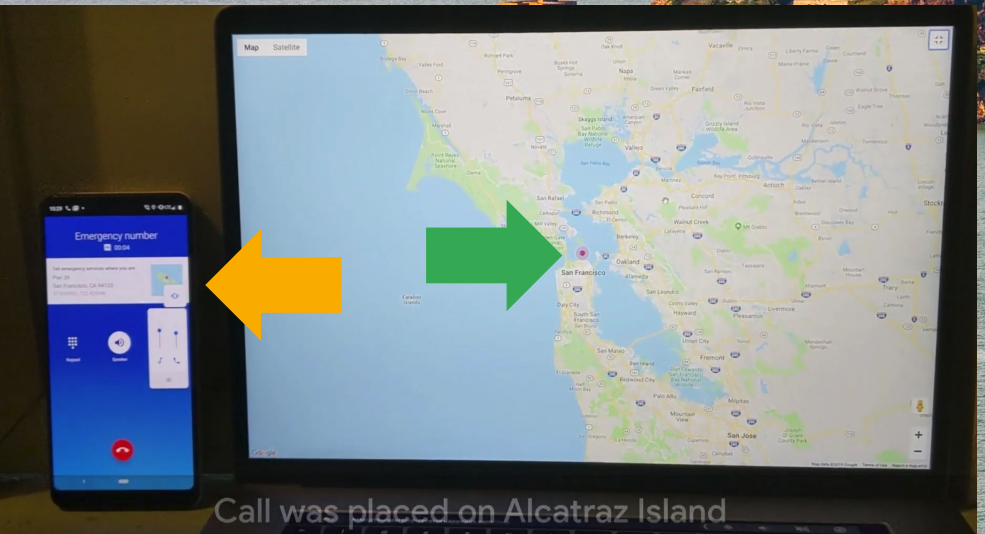
ELS Already Operates at Scale

- Enabled in 24 countries, including in the U.S.
- Covers 800M+ in population
- 2.5M+ emergency calls daily
- Provides emergency text messages in 10 countries

PSAPs Receive Actionable Indoor Location

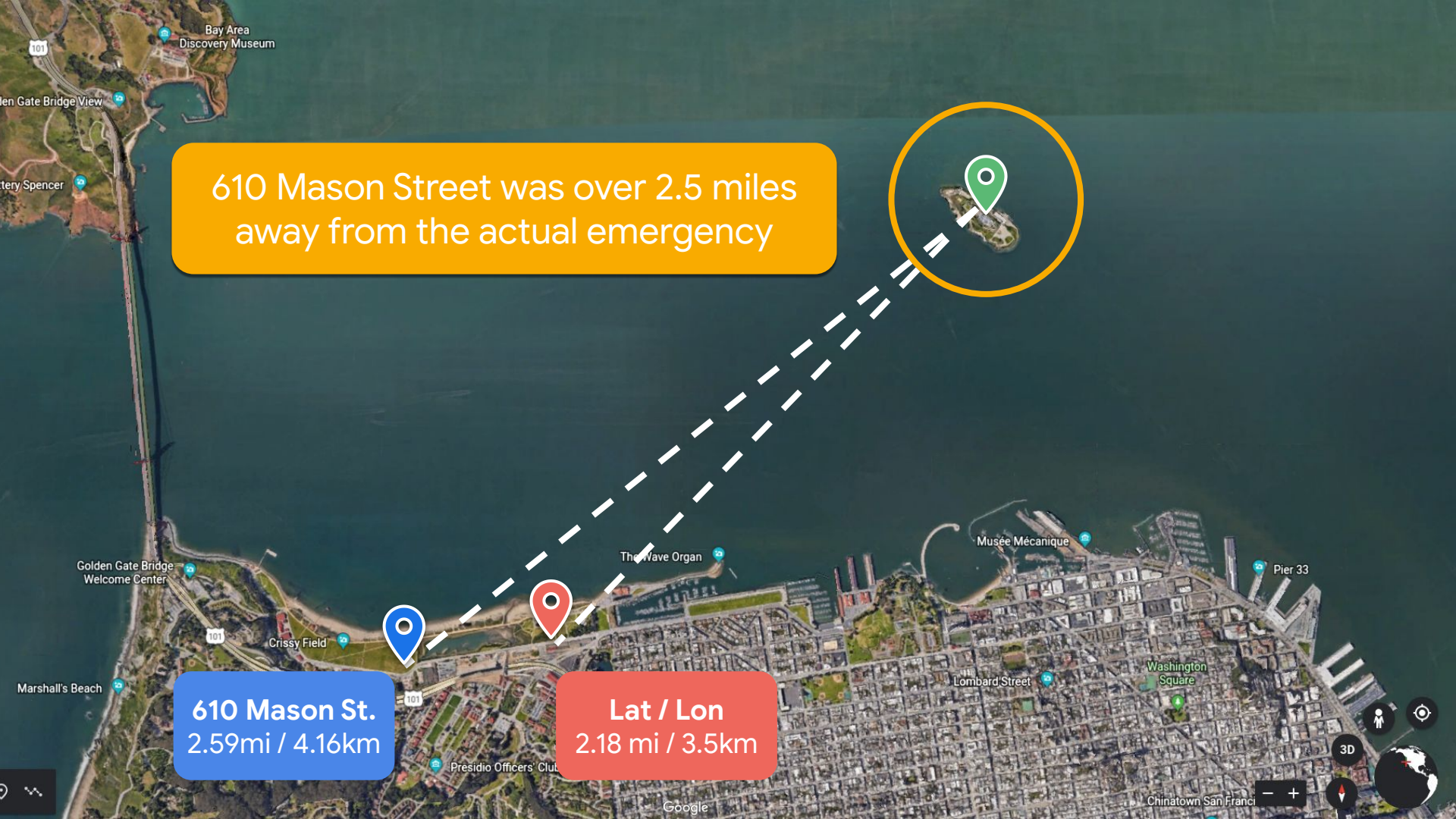
- ELS outputs today X, Y, and Z for both outdoor **and indoor environments**
  - Z available but not used by PSAPs/ECCs
- Currently being tested in CTIA's Stage-Za Test Bed

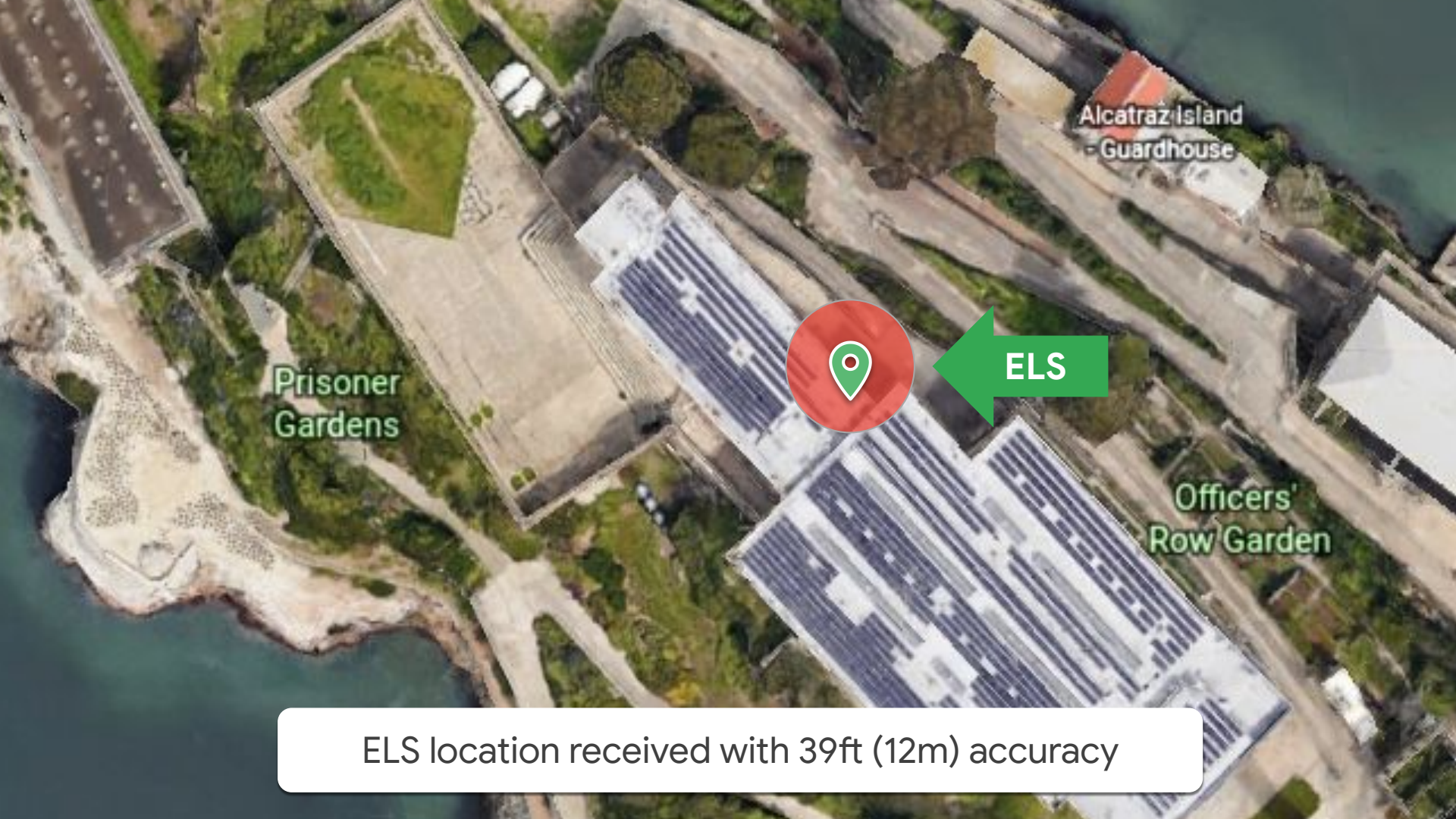
Emergency 911 call made from Alcatraz Island



Call was placed on Alcatraz Island


San Pablo
Richmond
El Cerrito
Berkeley
Oakland
Alameda
San Francisco
Daly City
Gate
580
24
13
Emergency number


610 Mason Street was over 2.5 miles away from the actual emergency
610 Mason St.
2.59mi / 4.16km
Lat / Lon
2.18 mi / 3.5km
Bay Area Discovery Museum
Golden Gate Bridge Welcome Center
Crissy Field
Marshall's Beach
Presidio Officers' Club
The Wave Organ
Musée Mécanique
Pier 33
Lombard Street
Washington Square
Chinatown San Franci
Google
3D



ELS location received with 39ft (12m) accuracy

Enhance the Rule With Floor Estimates

- Floor level estimates may become feasible for some technologies; the Rule should encourage–not block–this innovation

- First responders would benefit from an **optional alternative** of providing/receiving floor estimates

    - **FROM:**
        - Adopt a z-axis accuracy metric of +/- 3 meters for 80 percent of wireless E911 calls from z-axis capable handsets

    - **TO:**
        - Adopt a z-axis accuracy metric of +/- 3 meters **or +/- 1 floor** for 80 percent of wireless E911 calls from z-axis capable handsets

A Floor-Level Alternative Achieves FCC Policy Goals

- Speeds availability of usable vertical location information for first responders
  - Avoids dependence on new field technologies
- Technologically neutral
  - Solutions that provide floor information if they don't also provide elevations within +/- 3m can meet the standard
  - Leaves door open to innovation
- Efficient, Scalable, Actionable
  - Scales beyond 25/50 top CMAs
  - No additional demand on phone resources